

Atty Docket No.: 09857/0203042-USO

10/540736

Inventor: Kentaro Tomii

Appn: Not Yet Assigned Filed: Concurrently Herewith

Title: A SYSTEM FOR PREDICTING THREE-DIMENSIONAL STRUCTURE OF PROTEIN

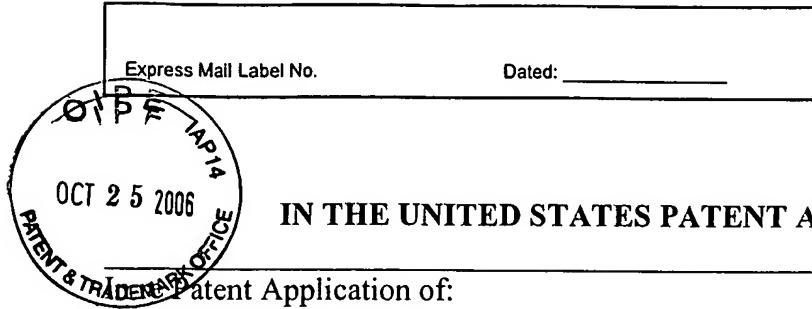
Documents:

Certificate of Express Mailing Under 37 CFR 1.10 (1 pg)
PTO 1390 (2 pp); PTO 08A (2 pp); 2 copies of Int'l Appl. (32 pp)
2 copies of Eng. Translation of Int'l Appl. (27 pp); Claims (2 pp)
Abstract (1 pg); Drawings (Figs. 1-5; 5 sheets)
First Preliminary Amendment (6 pp); IDS (2 pp); PTO/SB/08A (1 pg);
ISR with these documents; Affirmation of priority claim (1 pg) w/
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JC10 Rec'd PCT/PTO 24 JUN 2005 US



Docket No.: 09857/0203042-US0
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application of:
Kentaro Tomii

Application No.: Not Yet Assigned

Confirmation No.: N/A

Filed: Concurrently Herewith

Art Unit: N/A

For: A SYSTEM FOR PREDICTING THREE-DIMENSIONAL STRUCTURE OF PROTEIN
(AS AMENDED)

Examiner: Not Yet Assigned

FIRST PRELIMINARY AMENDMENT

MS PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this paper.

Remarks/Arguments begin on page 6 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please amend the title as follows:

A SYSTEM FOR PREDICTING THREE-DIMENSIONAL STRUCTURE OF PROTEIN

Following the title, please insert the following paragraphs:

CROSS-REFERENCE TO PRIOR APPLICATION

This is a U.S. National Phase application under 35 U.S.C. §371 of International Patent Application No. PCT/JP2003/016982, filed December 26, 2003, and claims the benefit of Japanese Patent Application No. 2002-377704, filed December 26, 2002 and 2003-406776, filed December 5, 2003, all of which are incorporated by reference herein. The International Application was published in Japanese on July 15, 2004 as WO 2004/059557 A1 under PCT Article 21(2).

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system for measuring the similarity between protein profile matrices ~~in order to predict a protein three-dimensional structure, wherein~~

~~said each profile matrix consists of comprises~~ a group of profile columns containing occurrence probabilities of every amino acid type at a respective locations of amino acid residues in a multiple alignment in which amino acid sequences ~~in of~~ a plurality of related proteins are multiply aligned ~~in multiple,~~

~~said system for measuring the similarity comprises the following means:~~

(a) means for preparing two profile matrices of a query profile matrix formed based on a plurality of proteins including proteins having three-dimensional structures to be predicted and a subject profile matrix formed based on a plurality of proteins having known three-dimensional structures;

(b) means for calculating correlation coefficients between the respective profile columns in said query profile matrix and the respective profile columns in said subject profile matrix with respect to full or partial combinations of both the respective profile columns; and

(c) means for forming a score matrix ~~consisting of comprising~~ said correlation coefficients.

Claim 2 (original): A system for predicting a protein three-dimensional structure characterized in using a score matrix formed through a system set forth in claim 1.

Claim 3 (currently amended): A program for enabling a computer to function as a system for measuring the similarity between protein profile matrices ~~in order to predict a protein three-dimensional structure, wherein~~

~~said each profile matrix consists of comprises~~ a group of profile columns containing occurrence probabilities of every amino acid type at a respective locations of amino acid residues in a multiple alignment in which amino acid sequences ~~in~~of a plurality of related proteins are multiply aligned~~in multiple~~,

~~said system for measuring the similarity~~ comprises the following means:

- (a) means for preparing two profile matrices of a query profile matrix formed based on a plurality of proteins including proteins having three-dimensional structures to be predicted and a subject profile matrix formed based on a plurality of proteins having known three-dimensional structures;
- (b) means for calculating correlation coefficients between the respective profile columns in said query profile matrix and the respective profile columns in said subject profile matrix with respect to full or partial combinations of both the respective profile columns; and
- (c) means for forming a score matrix ~~consisting of comprising~~ said correlation coefficients.

Claim 4 (original): A computer-readable recording medium storing a program set forth in claim 3.

Claim 5 (new): A method for measuring the similarity between protein profile matrices to predict a protein three-dimensional structure, wherein

each profile matrix comprises a group of profile columns containing occurrence probabilities of every amino acid type at a respective locations of amino acid residues in a multiple alignment in which amino acid sequences of a plurality of related proteins are multiply aligned,

said method comprises:

- (a) preparing two profile matrices of a query profile matrix formed based on a plurality of proteins including proteins having three-dimensional structures to be predicted and a subject profile matrix formed based on a plurality of proteins having known three-dimensional structures;

- (b) calculating correlation coefficients between the respective profile columns in said query profile matrix and the respective profile columns in said subject profile matrix with respect to full or partial combinations of both the respective profile columns; and
- (c) forming a score matrix comprising said correlation coefficients.

REMARKS

The title is amended to be in conformance with the translation of the International Application.

The specification has been amended in accordance with 37 CFR §1.78 to make reference to the International Application from which this application originates and to incorporate by reference the Japanese priority applications.

Claims 1 and 3 have been cosmetically amended to better describe the claimed invention.

Claim 5 has been added. The new claim is supported by the original claims and the specification. No new matter has been added by this amendment.

The claim fee was calculated based on the amended claim above. Please examine the application in view of the amendment set forth above.

Dated: June 24, 2005

Respectfully submitted,

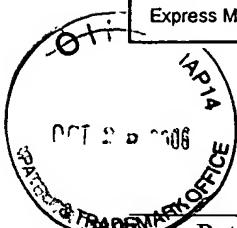
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Express Mail Label No.

Dated: _____

Docket No.: 09857/0203042-US0
(PATENT)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Kentaro Tomii

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Filed: Concurrently Herewith

For: A SYSTEM FOR PREDICTING THREE-DIMENSIONAL STRUCTURE OF PROTEIN



Confirmation No.: N/A

Art Unit: N/A

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

A summary/abstract translation of the non-English language documents is enclosed.

A copy of each document on the PTO/SB/08 is attached.

Citations BA is not in the English language. In accordance with 1.98(c), Applicant states:

The requirement for concise explanation of relevance of Citation BA is satisfied by the attached translation of the abstract (see MPEP § 609 A(3)). Also enclosed is an English language copy of a Search Report from a foreign patent office, issued in a counterpart application.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Commissioner is authorized to charge any deficiency of up to \$300.00 or credit any excess in this fee to Deposit Account No. 04-0100.

Dated: June 24, 2005

Respectfully submitted,

By Chris T. Mizumoto

Registration No.: 42,899

DARBY & DARBY P.C.

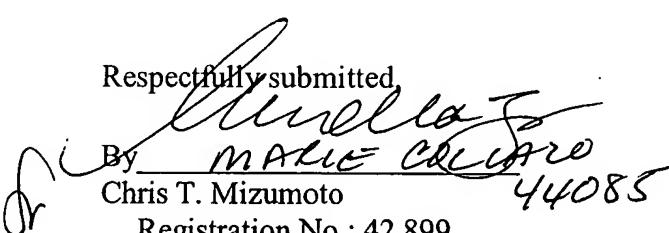
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New York, New York 10150-5257

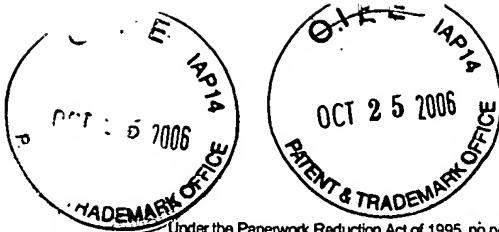
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44085



PTO/SB/08a/b (08-03)

Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449A/B/PTO				Complete If Known	
				Application Number	Not Yet Assigned
				Filing Date	Concurrently Herewith
				First Named Inventor	Kentaro Tomii
				Art Unit	N/A
				Examiner Name	Not Yet Assigned
Sheet	1	of	1	Attorney Docket Number	09857/0203042-US0

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)			
	BA	JP-2002-358309-A	12-13-2002	Hitachi Software Engineering Co., Ltd.	✓

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NON PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.			
	CA	"Within the Twilight Zone: A Sensitive Profile-Profile Comparison Tool Based Information Theory", by YONA, G. LEVITT, M., JOURNAL OF MOLECULAR BIOLOGY, February 1, 2002, Vol. 315, Issue 5, pp. 1257-1275; especially, pp. 1259-1260 [on line][retrieved on January 29, 2004, Retrieved from: <URL= http://www.cs.cornell.edu/golan/Papers/jmb02.pdf >			
	CB	"Comparison of sequence profiles. Strategies for structural predictions using sequence information", by RYCHLEWSKI, L. et al., PROTEIN SCIENCE, February 2000, Vol. 9, Issue 2, pp. 232-241 [on line][retrieved on January 29, 2004], retrieved from < http://www.proteinscience.org/cgi/reprint/9/2/232.pdf >			
	CC	Patent Abstracts of Japan for JP2002-358309 published December 13, 2002.			
	CD	International Search Report for PCT/JP2003/016982 mailed February 10, 2004.			

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¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

{W:1098 5710203}	Date Considered
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